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ABSTRACT

The objective of the project was to develop two coding systems, one on teaching strategies and one on pupil involvement in classroom activities. Videotape sequences served as test data for refining the categories. Codings were analyzed for clustering of teaching behaviors into teacher roles and relationships between teacher behavior and pupil behavior. Coded samples of trainees' early teaching sequences were compared to later sequences to identify change in teaching performance. The two coding systems offer a viable means for describing teaching-learning behavior in a gestalt, thereby laying a foundation for agreement on performance-competence criteria. The appendix includes a sample Teacher Behavior Form and Pupil Behavior Form. (Author/SE)

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TWO CODING SYSTEMS TO DESCRIBE TEACHING BEHAVIOR AND PUPIL BEHAVIOR: A GESTALT APPROACH TO TEACHING

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Paper delivered at the annual meeting of the American Educational Research Association, April, 1974

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TWO CODING SYSTEMS TO DESCRIBE TEACHING BEHAVIOR AND PUPIL BEHAVIOR: A GESTALT APPROACH TO TEACHING

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Preface

For the past three years, the early childhood staff of Queens College of the City University of New York has been in the process of designing and implementing an undergraduate early childhood teacher education program that focuses on teaching performance in field settings. The dimensions of this program which depart from the previous teacher education program at the college are:

1. a professional year of study, integrating learnings from the fields of educational psychology, child psychology and early childhood curriculum and methodology,
2. on-going weekly field experiences in an assigned field center from the first week of the program and continuing through the year,
3. continuity of faculty instruction and supervision through the assignment of one faculty member to supervise field experiences and college-based professional studies,
4. articulation of classroom teaching experiences with professional studies through joint weekly planning meetings with classroom teachers and college faculty,
5. use of instructional modules to facilitate individualization of student studies

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(6) the development of performance criteria as a determinant for successful completion of the program,

(7) evaluational procedures built into the program design.

The following study is an integral part of steps 6 and 7 and is designed to contribute to the task of developing performance criteria which are defensible in the broader field of early childhood education.

A second paper in this series describes the use of the two coding systems with classroom teachers to individualize teacher trainee practice. See Mott, J.K., Using Two Coding Systems, Teacher Behavior Form (TBF) and Pupil Behavior Form (PBF) with Classroom Teachers in Field Centers to Shape Observations and Guidance of Teacher Trainees.

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Background: Needs and Objectives

The primary task as defined by the researchers was to find a way to describe teacher functioning and children's involvement in a multiple-activity early childhood classroom which would be sufficiently simple and efficient to be of practical value to classroom teachers, teacher trainees and college faculty. The goal was to find a common language to describe teaching-learning interactions that can lead to a better understanding of the relationship between teaching behavior, and children's involvement and progress. As this goal is achieved, a legitimate focus for teacher education programs is possible. The goal is not unique in today's era of attention to performance and competence criteria in teaching. Efforts to find orderly procedures for describing teaching-learning dimensions of a classroom have been in the limelight for over a decade, long enough to accumulate enough studies to warrent synthesizing summaries on the state of the art. (Rosenshine & Furst, Simons & Boyers, Bellack) It is clear that there is no paucity of teacher observation systems and instruments. A brief review of any of the above cited summaries reveals the extensive effort that has been devoted to studying teaching and learning behavior. What the researchers identified as missing was a broad-based observational system including verbal and non-verbal behaviors, in both management and instructional dimensions, that could realistically serve the team of teachers, teacher trainees and college faculty in early childhood education.

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The current demands of certifying agencies in teacher education are forcing a premature specification of performance and/or competence criteria at the beginning teacher level. At this point in time, two problems which are of concern are: (1) the field has not clearly validated specific teaching behaviors as significant in terms of children's progress and (2) no orderly consideration has been given to the notion that effective teacher behaviors may have developmental stages in the process of acquisition. The study of such a notion may reveal much about appropriate criteria for teacher education and certification at different levels of experience, preservice, beginning teaching and in-service or graduate training.

Adding to the complexity of the task is that fact that a definition of what constitutes children's progress at the early childhood stage is somewhat obscure (Bentley, Washington & Young). Except for the standardized tests in the reading and mathematics for the early grades, practical tools for assessing progress related to school group experience for young children is notably sparse. Perhaps this is due to the fact that early childhood programs include broad goals in contrast to the more narrowly defined curriculum content goals of the upper educational levels. Early childhood education is popularly know for its committment to foster development in oral language, social skills, motor coordination, expressive skills through action and media, as well as concept and skill development in the traditional subject matter areas. (Leonard, Van Deman & Miles)

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If early childhood educators are to seriously face the challenge of developing performance criteria for the novice teacher, without the endless lists of minute behaviors or limited lists of grossly stated behaviors, it seemed critical to develop some format for looking at the gestalt of teaching and learning behaviors in the early childhood classroom. The task, as defined, was to find a way to talk about the behaviors being used by the young teacher and the learning behavior of the pupils as the teaching behavior occurs.

Underlying notions of the researchers in approaching the task have been extremely well art'culated in a recent research journal article in a special edition devoted to "Gaps in Teacher Education". (Medley.) The author discussed the gap between research in teacher effectiveness and the teacher education curriculum, specifically focusing on the current contribution of teacher observation systems. He noted that the performance criteria identified by the various category systems are probably all valid under selected conditions. Thus, the concern of the process-product research activities would be more appropriate if focused upon identifying relationships between performance criteria and teaching tasks in specific situations. This particular approach seemed fruitful in terms of considering an early childhood classroom which has distinctive dimensions to it.

No attempt is made here to indicate that there is only one form of early childhood classroom or that there is one over-riding theory which influences the development of programs for young children. (Note that early childhood herein

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refers to ages three to eight years, encompassing programs for prekindergarten, kindergarten, grades one and two.) However, the early childhood programs which drew the attention of the researchers were those which featured action-based learning activities in multiple-activity classrooms, small groupings for instruction and extensive use of instructional materials by the learners. In this environment, the instructional groups usually number no more than ten children, and more often less. Pupils have access to the instructional materials in the activity without extensive waiting time. Consequently, the pupils may respond actively to the instructional stimulus without excessive restriction on spontaneity.

Theoretically, the pay-off for this instructional format is high involvement of the children in the instructional activity. To maintain an active pace, the teaching behavior intermingles the management and instructional dimensions so that the involvement of the pupils in the task is not lost due to distracting managment behaviors by the teacher.

One additional feature of such early childhood classrooms warrants attention. Within the action-based learning model, instructional activities range across a spectrum from the pupil-selected exploratory and practice activities to the teacher mandated activity, often didactic in form. The essential task was to develop a broad-based observational system which distinguished between teaching behaviors used in one type of activity as contrasted to another type of activity. Similarly, it could have the capacity to identify differences in children's involvement in the differing types

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of instructional activity with its correlated teaching behaviors. This approach offered the potential for process-product studies on children's progress in terms of learning goal and type of instructional activity and teacher behavior. This is in contrast to the more common approach of (1) building process-product studies on gross progress of children or (2) comparing general teaching style to progress on discrete learnings.

An observation system was sought that was versatile enough to focus on different kinds of instructional episodes in an early childhood classroom, including materials exploration, drill practice, didactic and discussion episodes. The goal was to develop the tools to investigate further into the relationship between teaching behavior, the type of instructional activity, instructional goal and children's learning behavior. If it is demonstrated that certain teacher behaviors tend to cluster around a learning goal, such as developing initial rhyming skills, then additional study can follow as to the degree to which the cluster of teacher behaviors correlates with learning outcomes at differing age levels.

In summary, the objective of the project was to develop two coding systems, one to describe teacher behavior and one to describe pupil involvment, which met the following criteria:

(1) encompassed a broad range of teaching behaviors which could be compared to pupil involvment in a variety of learning activities in an early childhood classroom.

(2) offered descriptive feedback on teaching-learning behavior usable by classroom teachers, teacher

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trainees and college faculty.

(3) would be sufficiently simple and efficient in use to be of practical value to classroom teachers, teacher trainees and college faculty in focusing on describing teaching performance and pupil involvement.

A coding system was needed which could be used as a functional part of a professional activity to promote professional understanding of teaching-learning interactions.

Procedures

After a careful review of the literature, the researchers eliminated those teaching observation systems which were restricted to either verbal or non-verbal behaviors, affective or cognitive behaviors, behavior management, or specific academic content areas. The broad-based instrument sought needed to include all of the above dimensions, maintaining simplicity by avoiding extensive breakdown in each of the above categories. Ultimately, the category system selected for revisement was one published as a program related system. (Robison & Schwartz). This category system had the advantage of already including many of the dimensions identified above. Extended study of the observation system was never completed so that it was subsequently published as a guide for ways to think about aspects of teaching behavior, to increase teacher sensitivity to some of the behaviors commonly employed by teachers of young children.

In terms of pupil behavior, the extensive possibilities

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of learner behavior were narrowed down to a primary dimension, that of involvement of the learner in the learning task. It would be difficult to find a learning theory that did not have an assumption that the involvement of the learner is a prerequisite to achievement in any learning procedure. The process by which the learner is engaged offers a point of dialogue between various theories, however, the attention of the learner to the learning task is essential. It is this simplest dimension that the researchers sought to establish in focusing on teaching-learning behavior, to begin to identify some parameters for describing the pattern of task involvement by pupils as it relates to teaching behavior in learning episodes.

The research team included 4 faculty members on the Early Childhood Staff at Queens College, CUNY. Two of these members were directors of the pilot year program, 1972-3 with 32 teacher trainees, and continued with a new group of 34 trainees in 1973-4. Over seventy-five video-taped classroom teaching episodes guided by the pilot year trainees and experienced classroom teachers provided protocol materials for refining the categories. In 1973-4 group, 17 trainees were selected for study and analysis of the codings of their video-taped teaching episodes. The trainess selected were assigned to one of two field centers serving distinctively different socio-economic and ethnic groups in the New York inner city. They were equally distributed in the two field centers and across grade level lines, from prekindergarten to grade two. This offered a representative group for study, from a variety of teaching environments.

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In the early developmental phases, as the categories for the Teacher Behavior Form (TBF) and the Pupil Behavior Form (PBF) were being clarified, the researchers viewed many of the aforementioned tapes collected prior to the current year. At various points throughout the developmental process, the developing teacher category system was tested for clarity and ease of explanation by presentation to small groups of trainees, classroom teachers from the field centers and college faculty. Each presentation was accompanied by practice on typescripts and video-taped sequences to test for concurrance on the definition of the categories. These early discussions of the developing categories contributed to clarification of the definitions. The groups were engaged in discussion of the meaning of the codings in describing relationships between children's involvement and teaching behavior.

In the later phase of the development of the TBF and PBF, seventeen video-taped instructional episodes were coded for analysis using both coding systems. Codings were completed by two members of the research team independently. In addition, coding, recoding procedures were used to secure the stability of the categorization. However, at this early stage, statistical analysis of inter-observer reliability and coding-recoding reliability were not undertaken. The codings were analyzed for:

1. frequency of use of teacher behaviors by an individual teacher to form a profile,
2. clustering of behaviors into a pattern, subsequently labelled teacher roles,
3. comparison of teacher roles with the form and goal of the instructional activity, and
4. comparison of teacher profiles with pupil involvement.

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Development of the Teacher Behavior Form

In discussion of the development of the categories of the TBF it is recommended that the reader refer to Appendix I for the complete set of criteria and definitions, and recording form. Chart I on page 10 offers a brief definition of the items.

Built into the Activities Analysis Form of Robison and Schwartz was a distinction between management and instructional concerns of the teacher. The rationale for this distinction was that an important part of teaching energy in early childhood classrooms is devoted to facilitating children's active involvement, often with materials, in the instructional activities of the classroom. This facilitation is achieved through management behaviors, in contrast to those behaviors directed to the instruction. In revising the categories, the clarity of this distinction was increased. As the categories evolved, the same teaching behaviors were observed to occur whether focusing on the procedures or the instruction, consequently the coding system was altered to account for these behaviors as in the Management Mode or the Instructional Mode.

Both affective and cognitive teacher behaviors were included. However, as has been noted in the research literature, the distinction between affective and cognitive behaviors is not as clear as it appears initially. Certain behaviors seem to be laden with the cognitive focus while others seem to combine with affective dimensions. (Rosenshine, 1971) The categories which were identified as having the heavy

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Chart I

Brief Category Definitions of the

Teacher Behavior Form

Managing Behaviors

1. Manipulate Materials: Teacher handles, distributes or organizes materials as a management function.
2. Give Directions: Teacher tells children what to do and/or how to do it by verbal command form or by signals and gestures.

Strong Cognitive Behaviors

3. Supply Information: Teacher gives information, lectures or narrates verbally.
4. Demonstration/Illustration: Teacher gives information non-verbally, by action, signal, gesture or using materials.
5. Reinforce: objective: Teacher responds to child's verbalization or action by offering descriptive feedback or response, reaffirming or denying child's behavior.
6. Short Answer Question: Teacher questions children for recognition and recall.
7. Elicit: Program Activity: Teacher invites or encourages children to engage in conversation or to work with materials, related to the instructional activity.
8. Probe: Teacher encourages children to find additional information, identify relationships, interpret experiences and make predictions.

Affective Behaviors

9. Reinforce: subjective: Teacher responds to children's verbalizations or actions with generalized praise or criticism.
10. Elicit: social: Teacher engages child in conversation of a personal-social nature, unrelated to a specific instructional activity in progress.
11. Physical contact: Teacher comes into physical contact with child.
12. Participate with children: Teacher interacts with children as a member of the group.
13. Non-intervention: Teacher is present, viewing the children and not interacting for sixty seconds.

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loading were for teacher inputs of Supply Information, (category) # 3 and Demonstrate, # 4. An additional teacher input was seen in the Reinforcement: objective behaviors of the teacher as the child's statements or actions were reaffirmed by the teacher, # 5.

In addition, cognitive emphasis was present in those teacher behaviors which call forth:

(1) what a child knows at the recognition and recall level. Short Answer Question, # 6

(2) narratives of impressions of experiences and/or production of behaviors already acquired. Elicit: program activity, # 7

(3) new connections or new understandings between what the child knows and the problem, stimulae or task presented, a form of cognitive extending. Probe, # 8

In essence, the familiar cognitive levels of Bloom's Taxonomy were collapsed into three categories. (Bloom)

Behaviors which were viewed as having strong affective as well as cognitive dimensions include communications which primarily offer generalized support and encouragement (or the reverse) , Reinforcement: subjective, # 9 , Participation-with children, # 12 and Elicit: social, # 10.

Only one category was viewed as primarily affective, that of Physical Contact, # 11. Early childhood teachers are often described as "touch" teachers, and though this behavior did not show up as dominant in the initial work with tapes, it was decided to leave the category stand for the current study.

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Teachers' reinforcement behaviors have been subject to considerable study and have varied definitions. In the TBF the reinforcement categories refer to teacher behavior which reflects or gives feedback to the child on his verbal or non-verbal behavior. Teacher reflection or feedback takes explicit or implicit form in the sense that the teacher clearly defines or alludes to the original behavior prompting the response. This category was sub-divided into Reinforcement: objective, # 5, and Reinforcement: subjective, # 9, to pick up this distinction between the explicit and implicit response base. Interestingly, earlier reports of research summaries discuss this area of difference as offering the strongest research evidence for forms of approval negatively and positively related to achievement. (Rosenshine, 1971)

The extensive use of materials in the learning activities with young children was accompanied by teacher manipulation of these materials in preparation, distribution and arrangement for use. This occurred in addition to the use of materials to communicate information. Manipulate materials, # 1, was included as a category which distinguished teacher use of materials in instruction in the form of Demonstration, # 4, from the management of the materials. By definition, Manipulate materials occurs only as a management behavior.

The giving of directions which is a dominant teacher behavior serves both instructional and management goals. Though, when the behavior occurs as an instructional one, it still supports the teacher controlling of the environment, the distinction between instruction and management was deemed

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important.

No attempt was made to delineate between teacher initiation or teacher response in the behaviors expect for the category of Reinforcement: objective & subjective, which by definition is a responding category. For example, the category system does not identify whether the teacher gives information in response to a child's question or whether the teacher initiates the communication. In this system, teacher behaviors were considered important without respect for the stimulus for the communication.

In summary, the items included in the observation system were seen to reflect dominant behaviors of teachers in multiple-activity, action-based learning environments where instructional episodes were diverse in format and focus.

Development of the Pupil Behavior Form

While reading the discussion, it is recommended that the reader refer to the definition of categories and the recording form in Appendix II.

The development of the PBF was completed subsequent to the development of the TBF and evolved from the discussion and observation comments made about the children as the TBF categories were being refined. Continual reference was made by the researchers and various participants to the involvement of the children in the instructional activity. Although the possibilities for describing the learning behaviorof the pupils range across a broad spectrum, the complexity of coding children's behavior when the children are

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grouped led to a single category or base for building the coding system. The form of children's involvement in the learning activity was chosen as the base from which the sub-categories were developed. As indicated earlier in this paper, there is considerable difference of opinion as to what constitutes effective learning behavior, but all theories have in common the notion that the learner must attend to the learning stimulus.

The children were viewed as attending the learning activity, resisting the learning activity or attending to another stimulus other than the one provided in the activity. Children who were watching the stimulus, responding appropriately verbally and/or with materials, and/or in action were considered to be task involved. Children who were passively or actively avoiding the expectations of the teacher to listen, produce responses or behavior were judged as task resistant. Children who were engaged passively or actively in an alternate activity, occuring simultaneously with the learning activity were described as task unrelated.

Children demonstrated their involvement level by apparently listening, Receiving, making verbal contributions, Producing Language, handling the materials, Manipulating Materials, and moving about, Producing Action.

As the researchers worked with the PBF, it was decided that time-sampling best reflected the pattern of involvement of the pupils. It also became evident that recording of all pupil behaviors at each interval was necessary. Since the

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coded episodes were of a ten-minute duration, time sampling was specified as the first three seconds of each thirty-second period. This allowed for twenty recordings in the ten-minute segment.

Defining Teaching-Learning Patterns

A beginning step was made in finding teaching-learning patterns by analyzing the codings of a teaching segment in terms of clusters of teaching behaviors occurring with pupil involvement. The clusters of teacher behaviors were called the teacher profile. The two stages of analysis of the codings were:

(1) developing profiles of each teacher,
(2) grouping profiles in terms of teacher behavior clusters and instructional goals.

These two stages represent the beginning work of the researchers in establishing a procedure for jointly analyzing the PBF and TBF.

The following analysis of a coded episode illustrates how a teacher profile is developed from the codings. See Appendix III for the raw codings.

Profile: Teacher A

Instructional Task:

Goals: 1. Vocabulary expansion, language labels
2. Visual discrimination practice.

Procedures: Use a UNICEF Lotto Game of foods from all over the world, an introductory experience with the materials. Discuss, label and match pictures.

Teacher Behavior (TBF)

There is a heavy loading of reinforcement behavior, with 34% of the behaviors appearing in the two categories, Reinforcement: objective and Reinforcement:subjective.

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An emphasis on learner acquisition is reflected in the behaviors of Supply Information and Demonstrate which represent 25% of the behaviors recorded. The next most dominant behavior was asking children to produce language and action through Short Answer Question and Elicit: program activity, representing 23 % of the behaviors.

A cycle of giving information to children, asking children to produce responses was continuously followed by reinforcement behaviors, thereby indicating the dominant pattern as reinforcement of information.

Pupil Behavior Form (PBF)

The language dimension of the activity was more dominant in the children's behavior than the manipulation of materials. Children were producing language, task related, 80% of the time. Visual discrimination practice through manipulation of materials was possible only 30% of the time, though the materials manipulation could have served disucssion purposes and not matching practice.

Summary: Vocabulary and oral language practice is herein related to heavy loading of teacher reinforcement behaviors combined with giving information and asking children to produce language.

This teacher's management behaviors are barely visable, while she sustains children's involvement throughout the episode.

The preceeding profile analysis represents only one ten-minute segment of teacher behavior and cannot be used to make generalizations about the teacher's total pattern or style of teaching. Multiple samples of teaching in a variety of instructional episodes would be required before the dominant

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pattern noted in this episode could be ascribed to a teacher. Similarly, no generalizations can be made about the use of the combined behaviors of reinforcement, supply information and questioning and eliciting as it relates to episodes directed to vocabulary expansion through discussion of new materials. However, what can be said is that this profile represents an example of the teacher's use of teaching behaviors and the children's involvement achieved in the episode.

Stage two of the analysis, grouping profiles in terms of teacher behavior clusters, suggested the need for further work along these lines. Where teacher clustering of behaviors amounted to at least one third of the behaviors employed by the teacher, the label Teacher Role was applied to indicate the extent of the use of the cluster of behaviors. Four teacher roles were identified in the group that was coded. These were Reinforcer, Information-Giver, Evaluator and Manager. Illustrations of how the teacher behavior clusters were formed are given on the following pages. Before studying these clusters it is important to note that only one-half of the trainees coded could be classified as demonstrating a Teacher Role, or having a dominant cluster of behaviors. Although nine did not manifest strong clustering of behaviors, five of this group could be described as having strong leanings toward a clustering pattern, that is, having 25%-30% of the behaviors in the cluster instead of the 33% level selected to indicate a Teacher Role. This left four trainess with no discernible pattern or clustering.

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Reinforcer: responding to children's verbalizations &/or actions by reaffirming the behavior or statement, as positive reinforcement, or contradicting and denying, as negative reinforcement.

Examples:

Trainee B

Behavior Cluster	Instructional Task
Objective & Subjective Reinforcement Behavior comprise 48.5 % of episode, backed up by elicitation, 14.9%	Language elicitation to precede children's story writing by dictation. No props during discussion. Grade I

Trainee A

Behavior Cluster	Instructional Task
Objective and Subjective Reinforcement Behaviors comprise 33.9% of episode, backed up by information giving, 24.9%	Expand vocabulary and practice visual discrimination with materials through discussion and use of materials. Grade I

Discussion:

Trainee B's reinforcement behavior was supported by teacher behaviors directed to eliciting. In essence, the trainee supported the elicitation by use of reinforcement behaviors. Children's high involvement in producing language that was task related continued throughout the episode.

Trainee A's reinforcement behavior was backed up by giving information. In contrast to Trainee B,, this trainee supported the communication of information rather than supporting the elicitation. Children's involvement in producing language that was task related was somewhat less than Trainee B, at 80% instead of 100%.

In essence, the behaviors were consonant with the goals.

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Information Giver: communicating information to children by verbalizing &/or demonstrating with gestures, actions or materials.

Trainee C

Behavior Cluster	Instructional Task
Verbal infor: 19% Demonstrate: 21.8% totalling 40.8% backed up with giving directions, both for instruction & management, 36.8%	Mathematics review of procedures for finding linear measurement, through a practice activity. Grade I

Trainee D

Behavior Cluster	Instructional Task
Verbal infor: 19 % Demonstrate: 21.8% totalling 40.8% backed up by giving directions in instruction, 10 % and use of management behaviors, 23%.	Mathematics review of linear measurement, followed by practice activity. Grade I

Discussion:

Unusual conformity of the percentages of behaviors raises some questions about the possible uniformity of procedures in the specific instructional task being implemented by both teachers. This bears investigation.

Trainee C had increasing loss of involvement related to the task during the progress of the activity, as children increasingly engaged in tasks unrelated to the focus of the activity. In contrast, Trainee D sustained pupil involvement in the task. The difference seems to rest in the variation in use of directions and management behaviors. The distinctive difference seems to be in the manipulation of materials as a management behavior by Trainee D and not Trainee C. Further investigation is needed.

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Manager: controlling the procedures or management of the activity through control of the materials, organizing the environment and directing children on procedural aspects of the activity.

Trainee K:

Behavior Cluster	Instructional Goal
Management directions, 20% combined with other Management behaviors totaled 39%. The supporting behaviors spread out into 3 categories: give info. 18% reinf.,obj. 17 % short ans. q. 19 %	Science: investigating the interior of fruits and vegetables for seeds; also, comparing properties of the foods using all five senses. Props, real food. Grade 1

Discussion:

High involvement of children throughout episode. The extensive use of management behaviors bears further investigation in terms of the ends toward which the management was directed. The apparent focus of engaging the children in using the five senses combined with the strong management directions raises more questions than it answers.

. . . . . .

Evaluator or Tester: requiring children to produce what they know through the use of test questions combined with giving directions.

Trainee H:

Behavior Cluster	Instructional Goal
Short answer question, 36.6% backed up with manage. directions, 23.2%	Drill practice, initial word sounds using a picture chart as a prop. Kindergarten

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Trainee I:

Behavior Cluster	Instructional Goal
Short Answer question, 27.4% accompanied by instructional directions, 14% Management behaviors, 14%	Drill practice, initial word sounds using word cards as propr. Grade I

Trainee J:

Short Answer question, 21.4% Instruction direction, 16% Management direction, 8.3%	Drill practice, word recognition using word cards as props. Grade I

Discussion:

Both trainees H & I had decreasing involvement of the children throughout the episode in terms of the task. In contrast, Trainee J sustained the involvement. Though not part of the behavior cluster, the presence of objective reinforcement, 10% in J's behaviors may account for the difference in the task involvement of the children. The behaviors are basically similar in the clustering, yet variations of the use of the less dominant behaviors and the presence of some negative affect in the behavior of both H and I raise questions for further study of the Evaluator-tester role.

Summary

During phase one of the developmental project, two coding systems were developed, one to describe teaching behavior and one to describe pupil involvement. The Teacher Behavior Form includes thirteen categories, focusing on both management and instructional, verbal and non-verbal teaching behaviors with affective and cognitive dimensions. The Pupil Behavior Form focuses on children's forms of involvement in instructional

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activities. Four forms of involvement were identified, ranging from receiving and attending stimulae offered to producing language and action. Non-attending pupil behavior was recorded as unrelated or resistant.

Technical treatment of the category systems for inter-observer reliability and item analysis was neither planned nor implemented in this phase of the project. The field already offers numbers of observation systems statistically treated for the above items but not suitable for observing teaching-learning behavior in early childhood classrooms. The task was to develop a set of coding systems and explore possible analysis of teaching-learning interactions in the action-based classrooms of early childhood. Once initial work indicated that the coding systems could meet the need, step two would be planned to formally test the coding systems for independence of items and reliability.

Initial work with seventeen coded episodes of video-taped sequences revealed clusterings of teaching behaviors into patterns which were subsequently labelled <u>teacher roles</u>. The clustering patterns identified were (1) managing the environment, (2) giving information, (3) evaluating or testing children's progress, and (4) reinforcing children's verbalizations and actions. Pupil involvement was recorded as reduced with the pattern of testing for child progress.

The next steps planned are to (1) accumulate a large number of coded segments for item analysis and (2) establish inter-observer reliability. Finally, validity studies will be planned in terms of teaching behavior patterns related to

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learning behavior patterns toward selected instructional goals and children's progress.

TEACHER BEHAVIOR FORM (TBF)

Definition of Categories: Across the horizontal frame are two categories with identical subdivisions. The first category refers to the instructional activity and the second category refers to the procedures by which the instructional activity is managed. Teaching behavior devoted to the activity is coded as instructional, while teaching behavior devoted to facilitating the procedures of the activity is coded as management. The two sub-divisions in these categories indicate the presence or absence of teacher criticism of the learner. Teacher criticism is coded as having negative affect when the criticism of the pupil seems to reject, demean or isolate the learner from the learning environment without opportunity to regain status. Absence of the negative affect, by definition, is coded as positive affect. See examples below.

1. Manipulate Materials: Teacher handles materials without making direct referral to the materials in other teaching behavior. The manipulation of the materials takes the form of pre-arrangement, distribution , re-distribution, running machines and straightening up. By definition, this behavior is always coded as management. It is distinguished from Demonstration by the lack of direct referral to the materials in the other teaching behavior at the time of the manipulation. This behavior often occurs concurrently without another behavior, but, by definition, is unrelated.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
		Reaching for a piece of chalk while talking about the weather. Distributing materials silently. Arranging materials while engaging children in an introductory discussion of activity. Taking back materials while changing discussion topic.	Expressing generalized anger by banging or abrupt movements with materials and equipment, without any referent for this anger in child behavior.

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2. Give Directions: Teacher tells children what to do, either as part of the instructional activity or as part of the management procedures. This behavior is distinguished from Eliciting and Supply Information by the command form.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
Telling a child what to do or say as part of the activity. "Put your magnet next to each item in the box." "Mix the flour and the water with the salt." "Everybody draw a circle on the paper."	Command with an angry tone, or overt hostility or sarcasm.	Assigning the speaker or the next performer in the activity. "Johnny, tell us...." Procedural directions: "Put your pencils away." "Give me the extra crayons." "Open your books to page 31."	Critical tone: "Do it right this time." "Stop hitting him." "Don't sit like a tired old lady." "Be good like J...."

3. Supply Information: Teacher offers information verbally. This occurs as a teacher initiated communication or in response to a child's request for information. It is often accompanied by Demonstration (#4) with materials or gestures.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
Telling a child the names of the days of the week. Labelling colors. Explaining how a magnet works. Describing an experience with floating and sinking. Reading printed material.	Critical intonation while correcting a child's response.	Telling the correct location for putting materials away. "The blocks belong on the top shelf." "After recess we will practice ...." "You will have a turn after A...."	Critical intonation while communicating information on procedures and order of classroom and activities.

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4. Demonstrate/illustrate: Teacher offers information non-verbally by gesture, head-nodding, pointing, body movement and manipulating materials. This behavior is distinguished from manipulate materials by the direct reference to what is occurring in the interaction between teacher and children. Parrallel behaviors are often Supply Information or Give Direction.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
Showing child how to hold scissors or pencil. Cutting open fruit to show what's inside while children watch. Showing how to fold paper in origami. Holding up a picture, pointing to parts and labelling them.	Using abrupt of angry movements while demonstrating instructional information.	Pointing to a shelf telling child where to find crayons. Showing where to put musical instruments. Placing a chair in line to demonstrate positioning of chair.	Using abrupt or angry movements while demonstrating a procedure.

5. Reinforce Objective: Teacher responds to child's verbalization or action by offering descriptive feedback or response. The responses reflect back to the child what he has done or said in precise terms, establishing clearly what the response refers to in descriptive dimensions.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
"You made a big, round circle." "The letter P you made fills up the two spaces just right." "Right" (to child's answer to a question.) Echo responses.	"That circle is jagged all around, and it's lopsided." in cirtical tone. "That answer is wrong/" Critical	You put all the big blocks together just right. You desk is very clean.	Critical tone: "Your desk has many books on it." "You're not sitting up straight."

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6. Short Answer Question: Teacher questions children for recognition and recall. This behavior is distinguished from Elicit by the focus on facts, requiring a brief response. The questions usually focus on "What?" and "Who?".

Instructional Mode (+)	Instructional Mode (−)	Management Mode (+)	Management Mode (−)
"What is Today?" "What is the weather outside?" "Who discovered America?" "What time does the clock say when the hands are straight up?"	Having critical, or sarcastic tone.	"Who can answer this Question?" "Who thinks they can do this problem?" "What do you do with your book when you are finished reading? "Do you know what to do next?" "Did you do this?"	Tonal - criticcal, angry or sarcastic, belittling.

7. Elicit: Program activity: Teacher invites children to engage in conversation or work with materials. Invitation may take the form of encouragement, use of the universal "We" or asking open ended questions. THis behavior is distinguished from giving directions, by the stated or implied choice given the child to participate or observe or withdraw.

Instructional Mode (+)	Instructional Mode (−)	Management Mode (+)	Management Mode (−)
"See how many things you can find that match this color." "What did you do this weekend at home?" "What kinds of animales have you seen at the zoo?"		"How would you like to help your freind clean up?" "Why don't you collect the books?" "See what else you can do to help." "Tell us how you managed...."	

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8. Probe: Cognitive extending through questions that encourage a child to find additional information, put information together in a different order, identify relationships, interpret experiences and perceptions. This behavior is frequently signaled by the use of "How?", "What else?", "What more...?" "Why..?" This category is distinguished from the Elicit category by the emphasis on having the children develop new ways of relating information, or extending what they know.

Instructional Mode		Management Mode	
⊕	⊖	⊕	⊖
"How can you find out which objects will float?" "In what ways do these objects go together?" "What other things can you think of that will..." "Why do you think that happened?"		"How shall we schedule the day to include..." "What other ways can we set up for clean-up?" "Why do you think we are having such trouble in...?"	

9. Reinforce: subjective: Teacher responds to children's verbalizations or actions with generalized praise or criticism without direct reference to what cause the pleasure or displeasure. Often this behavior communicates interest and enthusiasm in the child's work or conversation without specification of content.

Instructional Mode		Management Mode	
⊕	⊖	⊕	⊖
Comments such as "Wonderful","Beautiful" "Great", "Lovely work" "Nice job." referring to a verbal contribution or productions.	Harsh or critical tone in telling child the work or contribution is incorrect, insufficient or unacceptable.	Same comments as noted in Instructional Mode, now used to refer to classroom procedures.	Harsh or critical tone...see Instructional Mode.

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10. Elicit: social: Teacher engages child in conversation about non-instructional items, apart from an organized instructional activity. Conversations of a personal-social nature usually take place during snack periods, arrival and departure and at some transition periods. By definition, these conversations and interactions are not part of the instructional activity, though are considered part of a teacher's teaching behavior. By definition, these behaviors are coded in the instructional mode. ONLY.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
"Where did you get your pretty new dress?' "How was that party you went to yesterday?" "Did the new baby come home yet?" "How would you like to help me fix my zipper?"			

11. Physical Contact: Teacher touches child, by placing hand or arm on a part of child's body. This may occur as an affectional communication, as part of an informational move, or as a management move. It often occurs parallel with another behavior but may occur in isolation.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
Teacher moves child's around the scissors into proper grip. Teacher guides child's hand in counting.	Abrupt or harsh movements, similar behaviors.	Touches child to signal his turn to talk. Holds child on lap during story.	Harsh or angry abrupt movements, signalling procedures.

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12. Participate with Children: Teacher interacts with children as a member of the group. This occurs in activities where the teacher and children are making something as a joint project, such as making play-dough or cooking. This behavior is also noted when the teacher and children laugh together over a common experience.

Instructional Mode		Management Mode	
(+)	(-)	(+)	(-)
Working silently with children mixing paints. Chatting with children about how the activity is progressing. Laughing together. Playing board game or musical game.		Working parallel with children on clean-up chores.	

13. Non-intervention: Teacher is present, viewing the children and not interacting for at least a 60 second interval. By definition, this behavior cannot be categorized as instructional or management.

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TEACHER BEHAVIOR FORM (TBF) BEST COPY AVAILABLE

DATE_____ Age/Grade_____ # Children_____ Teacher _____

Activity_____ Recorder_____

Teacher Behavior	(+) Instructional Mode	(-)	(+) Management mode	(-)
1. Manipulate materials				
2. Give directions				
3. Supply information				
4. Demonstrate/ illustrate				
5. Reinforce: objective				
6. Short answer question				
7. Elicit: program activity				
8. Probe				
9. Reinforce: subjective				
10. Elicit: social				
11. Physical contact				
12. Participate with chldrn				
13. Non-intervention				

NOTES

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PUPIL BEHAVIOR FORM (PBF)

Definition of Categories: Across the horizontal frame are three categories designating the focus of pupil involvement. Task involved refers to pupil attention directed toward the teacher, teacher stimulus and the process of the instructional activity. Task unrelated refers to pupil attention directed to a stimulus other than the one provided by the teacher in the activity. Task resistant refers to pupil behavior in direct contradiction to the stated expectations of the learning activity.

Child Behavior	Task Involved	Task Unrelated	Task Resistant
Receiving: listening without verbal or non-verbal action.	Looking at the teacher or materials of instruction. Silent and inactive.	Looking away from teacher activity to another stimulus not a part of activity. Watching a classmate.	Silent inaction, refusing to talk or perform as requested by the teacher.
Producing language:	Answering questions or making verbal contributions.	Chatting with classmate; telling a child to move over, or discussing a toy brought from home.	Telling teacher "no" as a refusal to cooperate. Making nuisance noises.
Manipulating Materials: handling instructional materials	Handling activity materials as suggested or directed by teacher.	Handling materials not provided in activity or at the wrong time.	Handling materials in direct contradiction to stated expectations of the teacher.
Producing Action: moving about, total body movement.	Actions conforming with activity design.	Actions not related but not prohibited. Tying one's shoelace	Actions prohibited by the teacher.

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Appendix II (cont.)

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PUPIL BEHAVIOR FORM (PBF)

Teacher_____ Recorder _____

Children _____ Date _____ Activity_____

Child Behavior	Task Involved	Task Unrelated	Task Resistant
Receiving: listening without talking or moving about.			
Producing Language			
Manipulating Materials			
Producing Action moving about			

NOTES

Appendix III

TEACHER BEHAVIOR FORM (TBF)

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DATE 12/73 AGE/GRADE 5-6yr olds Children 3 Teacher Trainee A

Activity Introduction and practice with New letter sounds. Goal-Vocabulary expansion, foods of different cultures Recorder SLS / team

Teacher Behavior	+	Instructional Mode	-	+	Management Mode	-
1. Manipulate materials	14	5, 32, 48, 105		3, 9, 12, 18, 21, 34, 54, 70, 86, 110, 120, 141, 145	7.4%	(6) 3, 30, 54, 73, 119, 146
2. Give directions	4		2%			3.2%
3. Supply information	27	1, 2, 13, 27, 34, 39, 45, 49, 56, 64, 65, 66, 71, 96, 97, 109, 116, 121, 125, 127, 130, 135, 138, 142, 143, 151, 159	14.3%	153	3, 12, 38	
4. Demonstrate Illustrate	20	2, 19, 29, 34, 45, 51, 56, 66, 76, 79, 101, 105, 116, 121, 125, 127, 142, 149, 151, 154	10.6%		38	
5. Reinforce: objective	23.8%	14, 16, 20, 23, 27, 28, 31, 37, 41, 42, 43, 46, 48, 53, 55, 57, 60, 62, 64, 72, 74, 75, 80, 82, 90, 92, 95, 100, 107, 108, 109, 112, 114, 115, 122, 123, 126, 128, 132, 134, 137, 139, 144, 155		52	4	
6. Short answer question					7, 11, 24	6, 17, 19, 22, 33, 35, 40, 42, 52, 57, 58, 59, 61, 63, 67, 73, 77, 82, 84, 93, 99, 101, 147
7. Elicit: program activity	18	25, 26, 87, 88, 89, 94, 102, 111, 116, 122, 129, 136, 138, 139, 150, 152, 155, 156	9.5%			
8. Probe						
9. Reinforce: subjective	19	15, 24, 32, 38, 44, 68, 70, 85, 88, 91, 98, 101, 108, 113, 115, 124, 140, 148	10.1%			
10. Elicit: social						
11. Physical contact						
12. Participate with children						
13 Non-intervention						

NOTES

189 moves recorded
14 instances of 3/4 combined
Reinforce: 33.9%

3+4+5 = 48.7%
6+7+8 = 23.3%
Management = 14.8%

teacher input
Solicit from children

Appendix III (cont.)

PUPIL BEHAVIOR FORM (PBF)

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TEACHER Trainee A Recorder S.L.S.

Children 3 Date 12/73 Activity Lotto game-foods

Child Behavior	Task Involved	Task Unrelated	Task Resistant
Receiving: listening without action	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 18, 19		
	75%		
Producing language	3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17 18, 20		
	80%		
Manipulating materials	9, 12, 13, 14, 15, 17, 18		
	30%		
Producing Action: moving about			

Interesting to note that though the observer's impression is that children are continuously manipulating the materials, time sampling indicated that this behavior only occurs 30% of the time.

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